

ABSTRACT

[Object] An object of the present invention is to mount both a RF circuit including an inductor formed therein and a digital circuit on a single chip.

[Means for Solving Problems] MOSFETs are formed on a semiconductor substrate 1 in regions 5 isolated by an element isolation film 2. A plurality of low-permittivity insulator rods including a low-permittivity insulator embedded therein and penetrating a first interlevel dielectric film 4 to reach the internal of the silicon substrate are disposed in the RF circuit area 100. An inductor 40 is formed on the interlevel dielectric film in the RF circuit area by using multi-layered interconnects. A high-permeability isolation region in which a composite material including a mixture of high-permeability 10 material and a low-permittivity material is formed in the region of the core of the inductor and periphery thereof.